



Application No.: 10/680,049

Docket No.: 103488-0021

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Dated: September 28, 2004 Signature: 9/28/04
(David J. Powsner)

(FC)

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent Application of:
Howard Greenblatt et al.

Application No.: 10/680,049

Confirmation No.: 8291

Filed: October 7, 2003

Art Unit: N/A

For: METHODS AND APPARATUS FOR
IDENTIFYING RELATED NODES IN A
DIRECTED GRAPH HAVING NAMED ARCS

Examiner: Not Yet Assigned

PETITION TO MAKE SPECIAL UNDER 37 CFR 1.102(d)

MS Petition
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir or Madam:

Applicants hereby petition the Director to make special the above-cited application and, thereby, to accelerate its examination in accord with MPEP 708.02, Section VIII.

Accompanying this petition is a check in the amount of \$130.00, as set forth in 37 CFR 1.17(h). Please charge any additional fees necessary for this petition to Deposit Order Account 14-1449. For this purpose, a duplicate of this document is enclosed.

The Claims are Directed to a Single Invention

The claims pending in the present application are believed to be directed to a single invention. If the Patent Office determines otherwise, the Applicants shall make an appropriate election, without traverse, as required by MPEP 708.02, Section VIII, Paragraph (b).

Pre-Examination Search

A pre-examination search of U.S. patents was made on the Delphion online database using a keyword search, utilizing the following search terms:

10/01/2004 AUONDAF1 00000008 10680049

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directed graph, rdf, related nodes, similar nodes, equivalent nodes, equal nodes, and like nodes

Publications Most Related to the Claimed Subject Matter

Copies of the publications most related to the claimed subject matter uncovered by the aforementioned search are enclosed. A detailed discussion of each follows, pointing out how the claimed subject matter of the instant application is patentably distinct therefrom. The citation of a publication herein shall not be interpreted as an admission that the publication constitutes prior art.

U.S. Patent No. 4,953,106 is directed to computer-implemented technique for automatically drawing directed graphs by implementing a node interconnection list supplied by the user to reduce edge crossings to and improve picture clarity. Nowhere does it teach or suggest a method for identifying related data or triples (herein after "nodes") in a directed graph, which method comprises, among other things, identifying nodes matching a specific criteria, and identifying nodes that are ancestors thereof and that do not conflict with the criteria, and/or identifying nodes that are descendants thereof, which do not conflict with the criteria and do not have certain relationships, as detailed in the pending claims, with the ancestor from which it descends. Instead, the cited patent utilizes a list of nodes and edges to draw a directed graph. Although the phrase "related nodes" appears in the patent, it appears only in the Background of the Invention portion of that document, where it is used in reference to the types of nodes (e.g., "related") that can be found (e.g., by a human) from a visualization of a directed graph. There is no further mention of related nodes in the patent, nor of a method for finding such related nodes in the manner recited in claim 1 and the other independent claims.

U.S. Patent No. 5,333,254 is directed to a method of centering nodes in a hierarchical display. Unlike the claimed invention, it does not teach a method for identifying related nodes in a directed graph, including a method for identifying related ancestors and descendants as called for by the pending claims. Rather, the cited patent teaches a display technique where each node is in one of a set of rows, and where a designated node can be centered in the structure. "Related" nodes are mentioned only in the Summary of the Invention portion of the document in regard to conventional techniques or reducing image resolution that do not ensure that the user can see the contents of related nodes (Col. 2, line 41). The patent does not specify a method for

finding related nodes in the manner recited, for example, in claim 1 and the other independent claims.

U.S. Patent No. 5,339,390 is directed to the operation of a processor that presents a sequence of images of a workspace, where the workspace is stretched to permit viewing of a piece of the workspace in greater detail. A user can select a node to be highlighted and moved to a specific position in the viewing area. Nodes representing files in the same directory as the selected node are displayed in white, while all other nodes are gray. Nowhere does the patent teach finding related nodes in the manner of the pending claims, e.g., by identifying nodes matching a criteria, and identifying nodes that are ancestors thereof and that do not conflict with the criteria, and/or identifying nodes that are descendants thereof, which do not conflict with the criteria and do not have certain relationships, as detailed in the pending claims, with the ancestor from which it descends.

U.S. Patent No. 5,450,480 is directed to a method of creating a telecommunication service specification in response to inputs from an operator of a record creation system. A call processing record includes nodes which are said to be logically related, where the nodes are single call processing instructions. Unlike the claimed invention, there is no discussion of how nodes are determined as being related, e.g., in the manner recited in the pending independent claims.

U.S. Patent No. 5,463,682 is directed to a method of creating a user-defined call processing node for a call processing record, which contains related nodes. “Related” nodes and directed graphs are mentioned in reference to the structure of the call processing record, in that the record contains logically related nodes and branches (in the abstract) and that nodes are logically connected to form a directed graph (Col. 17, line 34). As above, the patent provides no teaching in regard to how nodes can be determined as being related, e.g., in the manner recited in the pending independent claims.

U.S. Patent No. 5,579,486 is directed to a communication system with a plurality of nodes that can be coupled to a local host, where the nodes are devices that arbitrate for control of a bus and then transfer data to the bus. The patent teaches little with respect to directed graphs, only mentioning them in regard to another publication dealing with a method for arbitration on an acyclic directed graph. Unlike claim 1 and the other independent claims of the instant application, nowhere does the patent mention a method for identifying related nodes in a directed graph, e.g., by identifying nodes matching a criteria, and identifying ancestors thereof

which do not conflict with the search criteria, and/or identifying descendants thereof which do not conflict with the search criteria and do not have certain relationships, as detailed in the pending claims, with the ancestor from which it descends.

U.S. Patent No. 5,608,789 is directed to a method of creating user-defined call processing procedures, where an operator creates an underlying representation of call processing procedures by arranging predefined nodes into a user defined call processing node. There is nothing that teaches identifying related nodes in a directed graph, e.g., in the manner of the pending independent claims.

U.S. Patent No. 5,732,192 is directed to a method of global modeling that is compatible with local modeling, discrete simulation, and analysis, allowing for abstracted general-purpose local models. There is no mention of a method to identify related nodes in a graph, e.g., in the manner of the pending independent claims.

U.S. Patent No. 5,809,212 is directed to dynamic information structure for representing knowledge networks, where the information is linked together in some way, such as in a question and answer structure. Each node of the network comprises a number of data fields. This patent discloses a method for creating the information network, and for users to interact with and alter the information. However, the patent does not teach a method of identifying related nodes in the data network using search criteria, and ancestors and/or descendants as stated in the pending independent claims.

U.S. Patent No. 5,995,958 is directed to a system and method for storing and managing a database of functions, where the database is a collection of nodes and links forming a directed acyclic graph. The dependent relationships that are illustrated among the data provides means for manipulating the database. A method is described for deleting related nodes, which involves starting from the input node, and iteratively deleting all nodes connected by solid and dashed tails. Nowhere does the patent teach identifying related nodes in a directed graph by using search criteria and then finding related ancestor and/or descendant nodes as recited in the pending independent claims.

U.S. Patent No. 6,094,652 is directed to an information retrieval system that generates hierarchical query feedback to facilitate in reformulating a query. A plurality of nodes reflect associations among potential query terminology. A user inputs query terms and receives search results and hierarchical query feedback terms as output. To broaden a search term, the user selects an ancestor from the hierarchy, and to narrow a search term, the user selects a

descendant. Nowhere does the patent teach finding related nodes by criteria as recited in claim 1 or the other independent claims.

U.S. Patent No. 6,151,595 is directed to a method for displaying the results of a spreading activation algorithm useful in a large directed graph, e.g., the world wide web. This is said to allow for visual representation of relationships of the graph elements. Tree structures are generated from directed graphs and used to model web sites. A tree for a web site is generated by stepping through the graph for that site and by selecting nodes representing related web sites. Nowhere does the patent teach identifying related nodes in the manner recited by the pending claims, e.g., by finding nodes that match a search criteria, and identifying related ancestor nodes of the nodes identified as related unless that ancestor does not match the criteria, and/or identifying related descendent nodes of the nodes identified as related, unless that descendant does not match the criteria or has a certain relationship, as detailed in the pending claims, with the ancestor from which it descends.

U.S. Patent No. 6,185,534, U.S. Patent No. 5,987,415, and U.S. Patent No. 6,212,502 are directed to a user interface for modeling emotion and personality, where there is an observer that can observe behavior of a user and an agent that can convey emotion and personality by exhibiting behavior corresponding to the user. Each model is represented in a Bayesian network, and the two networks are linked. The only mention of related nodes is in an example of a Bayesian network in the Background of the Invention portion of the application (Col. 3, line 32), where the patent says that the network has arcs connecting related nodes. However, the patent does not teach identifying related nodes in a Bayesian network, e.g., by a method of identifying related nodes that match a search criteria, and identifying related ancestor nodes of the nodes identified as related unless that ancestor does not match the criteria, and/or identifying related descendent nodes of the nodes identified as related, unless that descendant does not match the criteria or has a certain relationship, as detailed in the pending claims, with the ancestor from which it descends, as recited in the pending claims.

U.S. Patent No. 6,369,819 is directed to a method for visualizing transformation among related graphs for the purpose of displaying the changes over time of a web site's structure, usage, and content. The web is viewed as a graph, with web pages representing nodes and hyperlinks representing links between the nodes. The patent does not teach a method for identifying nodes that are related, e.g., by identifying related nodes that match a search criteria, and identifying related ancestor nodes of the nodes identified as related unless that ancestor does

not match the criteria, and/or identifying related descendent nodes of the nodes identified as related, unless that descendant does not match the criteria or has a certain relationship, as detailed in the pending claims, with the ancestor from which it descends.

U.S. Patent No. 6,381,738 is directed to a method for optimizing the creation and destruction of objects in a computer program using information about the reachability relationships between objects and pointers. The nodes in a directed graph represent variables and the links represent reachability connections between the variables. Nowhere does the patent teach identifying related nodes in these graphs, e.g., by identifying related nodes that match a search criteria, and identifying related ancestor nodes of the nodes identified as related unless that ancestor does not match the criteria, and/or identifying related descendent nodes of the nodes identified as related, unless that descendant does not match the criteria or has a certain relationship, as detailed in the pending claims, with the ancestor from which it descends.

U.S. Patent No. 6,437,799 is directed to a method and apparatus for logical zooming in a directed graph, where zooming can exaggerate the appearance of a node directly related to a target node, so that a node with a predetermined logical relationship to a selected node is displayed differently to the user. The patent provides for finding related nodes based on predetermined information relating to graph hierarchy. However, nowhere does the patent teach finding related nodes by identifying related nodes that match a search criteria, and identifying related ancestor nodes of the nodes identified as related unless that ancestor does not match the criteria, and/or identifying related descendent nodes of the nodes identified as related, unless that descendant does not match the criteria or has a certain relationship, as detailed in the pending claims, with the ancestor from which it descends.

U.S. Patent No. 6,509,898 is directed to a method for generating a tree structure of a generalized graph so as to display nodes or links according to their importance. Usage parameters associated with each node and link are used to determine the visitation order when the graph is traversed so popular nodes are favored over less popular ones. Unlike the claimed invention, nowhere does the patent teach identifying the related nodes, e.g., by identifying related nodes that match a search criteria, and identifying related ancestor nodes of the nodes identified as related unless that ancestor does not match the criteria, and/or identifying related descendent nodes of the nodes identified as related, unless that descendant does not match the criteria or has a certain relationship, as detailed in the pending claims, with the ancestor from which it descends..

U.S. Patent No. 6,530,079 is directed to method for optimizing locks in a computer program by analyzing when transformations can be applied without disrupting semantics of the untransformed program. The program instructions are represented by a graph where the nodes are variables and the links are the flow of control between instructions, and the graph is used to determine if locking operations can be removed or simplified. The patent does not teach the identification of related nodes in the graph, e.g., by identifying related nodes that match a search criteria, and identifying related ancestor nodes of the nodes identified as related unless that ancestor does not match the criteria, and/or identifying related descendent nodes of the nodes identified as related, unless that descendant does not match the criteria or has a certain relationship, as detailed in the pending claims, with the ancestor from which it descends.

U.S. Patent No. 6,643,638 is directed to method and system for storing and managing data in a database, and for constructing application programs that access that data. The database is said to be a collection of nodes connected by directed links. Nowhere does the patent teach identifying related nodes in the graph, e.g., by identifying related nodes that match a search criteria, and identifying related ancestor nodes of the nodes identified as related unless that ancestor does not match the criteria, and/or identifying related descendent nodes of the nodes identified as related, unless that descendant does not match the criteria or has a certain relationship, as detailed in the pending claims, with the ancestor from which it descends.

Should any questions arise in connection with this **Request to Make Special**, please call the attorney whose name appears below.

Dated: September 28, 2004

Respectfully submitted,
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